



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

DEC 8 2003

DOT-E 9386
(SIXTH REVISION)

EXPIRATION DATE: October 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Pacific Scientific Company
HTL/KIN-TECH DIVISION
Duarte, CA
2. PURPOSE AND LIMITATIONS:
 - a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification weld stainless steel cylinder conforming with all regulations applicable to a DOT Specification 3HT cylinder, except as specified herein, for the transportation in commerce of the materials authorized by this exemption. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.301(a)(1), 173.304a(a)(1), and 175.3 in that non-DOT specification cylinders are not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of Pacific Scientific Company, dated November 6, 2003, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification welded stainless steel cylinder having 30 cubic inches maximum water capacity and 5100 psi maximum service pressure, conforming with HTL drawings 40004710 dated January 3, 1985 or 53040019 Rev. A, dated April 25, 1988 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and with DOT Specification 3HT (§ 178.44) except as follows:

§ 178.44(a) *Type, size and service pressure.*

Welded torus with end fittings girth-welded as shown in drawing not over 30 cubic inches water volume with a maximum service pressure of 5,100 pounds per square inch.

§ 178.44(b) *Authorized material.*

Corrosion resistant type 304 or 304L stainless steel.

§ 178.44(d) *Manufacture.*

(Added) Each cylinder must be subjected to a process treatment, witnessed by the independent inspector, after welding and before stress relieving. Process treatment must consist of hydrostatic pressurization at a pressure (maintained for at least 3 minutes) of at least 100 percent but not more than 110 percent of prescribed test pressure. Total and permanent expansion need not be recorded.

§ 178.44(e) *Welding or Brazing.*

Welding as prescribed in § 178.44(d) of this exemption is authorized. All pressure welds shall be 100 percent radiographed after hydrostatic test.

§ 178.44(g) *Heat treatment.*

The cylinders may be stress relieved or annealed for forming. Welded cylinders must be stress relieved at a temperature of 750 °F ± 25 °F for two hours. Stress relieving must be done after process treatment and before hydrostatic test.

§ 178.44(j) *Cycling test.*

* * *

(1) * * *

(2) Cycle test on each lot is not required, if three cylinders from the first lot are cycle tested.

(3) * * *

§ 178.44(l) *Flattening test.*

(Add) Alternate test specimen consisting of a ring section cut from the formed torus is authorized.

§ 178.44(m) *Physical tests.*

Determination of mechanical properties is not required.

§ 178.44(n) *Magnetic particle inspection.*

Magnetic particle inspection is not required. Instead, each cylinder must be inspected using apparatus and procedures for liquid penetrant examination in accordance with ASTM E-165-65. Inspection must be performed externally on the finished cylinder after hydrostatic test. Evidence of discontinuities, which in the opinion of the independent inspector may appreciably weaken or decrease the durability of the cylinder, must be cause of rejection.

§ 178.44(p) *Acceptable results of tests.*

* * *

(1) Flattening required without cracking to ten times the wall thickness of the cylinder.

(2) Physical tests: - Not required.

(3) * * *

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(4) **Cycling:** The design must be qualified by cycling three cylinders from zero to service pressure at a rate not to exceed ten cycles per minute to at least 50,000 pressurizations without evidence of distortion or failure.

§ 178.44(r) *Marking.*

- (1) Instead of DOT-3HT, cylinders must be marked "DOT-E 9386" followed by the service pressure.
- (2) Stamping of elastic expansion is not required.
- (3) Name plates. - Not required.

§ 178.44(s) *Inspector's report.*

Inspector's report must be appropriately modified to reflect identification and compliance with this exemption.

b. TESTING - Each cylinder must be reinspected and hydrostatically retested every 5 years in accordance with § 180.205 as prescribed for DOT-3HT cylinders, except that the rejection elastic expansion criteria does not apply.

c. OPERATIONAL CONTROLS -

- (1) Cylinders are subject to the use restrictions prescribed in § 173.302a(a)(2), except they may also be used in military weapons systems. A copy of the inspector's report on the first lot required in § 178.44(e) must be submitted to the OHMEA prior to initial shipment.
- (2) Cylinders must be shipped in strong outside packagings in conformance with § 173.301(a)(9).
- (3) A cylinder is not authorized 20 years after the date of manufacture.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modification or change is made to the package or its contents and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo aircraft only, and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft or motor vehicle used to transport packages covered by this exemption. The shipper must furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
 - o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.



For Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: KFW/alb